EAST - [09360421.wsp:1]

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  - L1: (659) 606/142
  - L2: (522) 606/143
  - L3: (479) (("606/142") or ("606/143")).CCLS.
- Failed
- Saved
  - (1) fabric same (antimicrobial or silver or zinc) same (coating or coated) same (heart adj
  - (5) fabric same (silver or zinc) and (heart near3 valve or suture near3 ring or sewing near
  - (3) (("5674280") or ("5895420")).PN.
  - (107) (("623/2.12") or ("623/2.17") or ("623/2.18") or ("623/2.28") or ("623/2.31") or ("62
  - (55) (("623/2.33") or ("623/2.42") or ("623/2.20")).CCLS.
  - (238) ("8/94.11").CCLS.
  - (907) (("606/149") or ("606/150") or ("606/151") or ("606/153")).CCLS.
  - (122) (("623/2.11") or ("623/23.68") or ("623/2.41")).CCLS.
  - (1) ("5716370").PN.
  - (11) (("3657026") or ("5250058") or ("5261920") or ("5571116") or ("5707380") or ("5716370"
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  - (115) ((("606/149") or ("606/150") or ("606/151") or ("606/153")).CCLS.) and valve
  - (5) ((("3657744") or ("5250058") or ("5261920") or ("5571116") or ("5707380") or ("5716370"
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DBs USPAT; EPO; JPO

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606/142
606/143

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	Search Terms	Total	USPAT	USOCR	EPO	JPO	Derwent	IBM TI
1	606/142.EX70,EX80,EX90,JX70,JX80,J590,J595,J500,UZ00,UX00,UX50,UG71,UG72,UG73,UG74,UG7	285						
2	606/143.EX70,EX80,EX90,JX70,JX80,J590,J595,J500,UZ00,UX00,UX50,UG71,UG72,UG73,UG74,UG7	259						
3	(606/143 | 606/142).CCLS.	479						

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EAST Browser - L5: (11) ("3657744")... | US 5250058 A | Tag: S   c: 2/11 (SORTED)

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	Document ID	Kind Code	Source	Issue Date	Pages
1	US 3657744		USPAT	1972042	6
2	US 5250058		USPAT	1993100	14
3	US 5261920		USPAT	1993111	9
4	US 5571116		USPAT	1996110	32
5	US 5707380		USPAT	1998011	24
6	US 5716370		USPAT	1998021	32
7	US 5720755		USPAT	1998022	59
8	US 3657744		EPO	1972042	6
9	US 5250058		EPO	1993100	14
10	US 5571116		EPO	1996110	32
11	US 5720755		EPO	1998022	59

US005250058A

United States Patent [19]

Miller et al.

[11] Patent Number: 5,250,058

[45] Date of Patent: Oct. 5, 1993

[54] ABSORBABLE ANASTOMOSIC FASTENER MEANS

[75] Inventors: Michael B. Miller; Mark S. Zeiner, both of Cincinnati, Ohio; James A. Trevene, Bridgewater, N.J.

[73] Assignee: Ethicon, Inc., Somerville, N.J.

[21] Appl. No.: 709,860

[22] Filed: Jun. 5, 1991

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 642,496, Jan. 17, 1991.

[51] Int. Cl.[5] A61B 17/00

[52] U.S. Cl. 606/184; 606/153; 606/220; 24/615; 411/457; 411/509

[58] Field of Search 606/153, 154, 220; 227/179; 411/509, 457, 512, 433, 908, 918; 24/616, 615, 590, 598, 621, 293, 297

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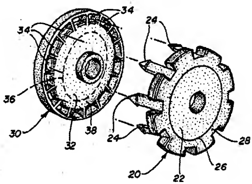
Primary Examiner—Stephen C. Pellegrino
Assistant Examiner—Gary Jackson
Attorney, Agent, or Firm—Paul A. Coletti

[57] ABSTRACT

A mechanism which is capable of anastomosis of two lumens by an absorbable fastener. The fastener is made from two washer-like plates. One such plate has holes to receive latching prongs protruding from the other plate. Fastening is done through a single linear motion that causes the prongs to pierce the tissue, latches the prongs into a receiver and causes a knife blade to cut through excess fastener material and tissue. The ease of removal, by pulling the mechanism through the formed anastomosis, is greatly enhanced. The system can be used such that the plates can be placed in any configuration to properly anastomose tissue.

16 Claims, 9 Drawing Sheets



	Doc Num	Kind Code	Source	Issue Date	Pages	
1	US 6030392		USPAT	2000022	25	Cc
2	US 5904696		USPAT	1999051	12	60
3	US 5897562		USPAT	1999042	30	Nc

United States Patent [19]

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[11] **Patent Number: 6,030,392**

[45] **Date of Patent: Feb. 29, 2000**

[54] **CONNECTOR FOR HOLLOW ANATOMICAL STRUCTURES AND METHODS OF USE**

[75] Inventor: **Pepi Dakov**, New York, N.Y.

[73] Assignee: **Monrovia, Inc.**, Schaumburg, Il.

[21] Appl. No : **08/858,275**

[22] Filed: **May 19, 1997**

Related U.S. Application Data

[63] Continuation-in-part of application No. 08/834,434, Oct. 2, 1997, Pat. No. 5,720,755, which is a continuation-in-part of application No. 08/674,043, Jun. 18, 1996, abandoned.

[51] **Int. Cl.**[7] **A61B 17/03**

[52] **U.S. Cl.** **606/139**; 606/148; 606/151

[58] **Field of Search** 606/139, 148, 606/153, 153, 151; 623/1; 222/175.1, 176.1, 179.1

[56] **References Cited**

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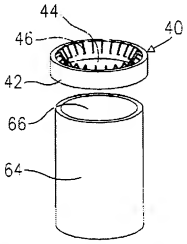
Primary Examiner—Michael Buiz
Assistant Examiner—Daphna Shai
Attorney, Agent, or Firm—Charles W. Bethards

[57] **ABSTRACT**

Connector and methods for attachment to hollow anatomical structures. The connector consists of an annular rigid body and multiple holding members affixed along its opening. The opening and the inner surface and of the annular body correspond respectively to the opening and the external surface of a hollow anatomical structure. The holding members are deformed by an applied force in a manner that the deformed holding members protrude into the opening of the hollow structure and press it towards the annular rigid body, thus attaching the connector to the hollow anatomical structure. Various embodiments of connectors and methods are provided for attaching the connectors to hollow anatomical structures with different external surfaces.

22 Claims, 14 Drawing Sheets



United States Patent [19]

Williamson, IV et al.

[11] **Patent Number: 6,042,607**

[45] **Date of Patent: *Mar. 28, 2000**

[54] **MEANS AND METHOD OF REPLACING A HEART VALVE IN A MINIMALLY INVASIVE MANNER**

[75] Inventors: **Warren Williamson, IV**, Loveland, Ohio; **Paul A. Spence**, Louisville, Ky.; **George T. Christakis**, Toronto, Canada; **Thomas J. Ward**, Grandview Heights, Ohio; **Beatrice P. DiNoto**, Columbus, Ohio; **George A. Keller**, Grandview Heights, Ohio; **Cecil R. Robinson**, Hilliard, Ohio; **E. Dale VanHoose**, Columbus, Ohio

[73] Assignee: **CardioVascular Technologies LLC**, Loveland, Ohio

[*] Notice: This patent is subject to a terminal disclaimer.

[21] Appl. No.: **08/802,948**

[22] Filed: **Feb. 21, 1997**

Related U.S. Application Data

[63] Continuation-in-part of application No. 08/606,343, Feb. 23, 1996, Pat. No. 5,716,370.

[51] Int. Cl.[7] A61F 2/24

[52] U.S. Cl. 623/2; 623/11; 606/153; 606/151

[58] Field of Search 623/2, 11; 606/142, 606/150, 151, 153

[56] **References Cited**

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Primary Examiner—Paul B. Prebilic
Attorney, Agent, or Firm—Terry M Gernstein

[57] **ABSTRACT**

A heart valve can be replaced using minimally invasive methods which include a minimal sewing cuff that and a fastener delivery tool that holds the cuff against the patient's tissue while delivering fasteners, two at a time to attach the cuff to the tissue from the inside out. The tool stores a plurality of fasteners. Drawings are operated from outside the patient's body and attach the sewing cuff to the valve body. The cuff is releasably mounted on the tool and the tool holds the cuff against tissue and drives the fastener through the cuff and the tissue before folding over the legs of the fastener whereby secure securement between the cuff and the tissue is assured. At least two rows of staggered fasteners are formed whereby fasteners are located circumferentially throughout the entire circumference of the cuff. A minimally invasive surgical method is disclosed, and a method and tool are disclosed for repairing abdominal aortic aneurysms in a minimally invasive manner.

104 Claims, 41 Drawing Sheets